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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,357	07/29/2003	Koichi Okawa	240975US90	4490

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EXAMINER

BALAOING, ARIEL A

ART UNIT	PAPER NUMBER
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2683

DATE MAILED: 06/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/628,357

Applicant(s)

OKAWA ET AL.

Examiner

Ariel Balaoing

Art Unit

2683

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/27/03 03/21/05 12/18/2003
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____

DETAILED ACTION

Claim Objections

1. Claim 6 is objected to because of the following informalities: The sentence of claim 6 ends with a comma, all claims should end with a period. Appropriate correction is required.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 8, 9, 12, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by KARLSSON (US 5,499,386).

Regarding claim 1, KARLSSON discloses a method of connecting a mobile station with a base station via a radio link in a mobile communication system (column 2:line 65-column 3:line 5) including a first base station capable of directional beam signal transmission and reception [directional antenna] (column 4:line 53-column 5:line 4) and a second base station incapable of directional beam signal transmission and reception [omni-directional antenna] (column 4:line 53-column 5:line 4; the invention disclosed can be used with either directional antennas or omni-directional antennas), the method comprising the step of: preferentially connecting the mobile station to the

Art Unit: 2683

first base station rather than to the second base station (106-Figure 10, column 2:line 65-column 3:line 54, column 11:line 9-15).

Regarding claim 2, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses wherein the step of preferentially connecting the mobile station to the first base station includes a step of: setting different handover threshold values for connecting and disconnecting the mobile station with the first base station and the second station, respectively, when the mobile station undergoes handover (column 3:lines 5-20, column 9:lines 23-33, column 9:lines 41-64, column 11:lines 9-35; base stations in the neighboring cells have differing preset handoff thresholds).

Regarding claim 3, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses wherein the step of preferentially connecting the mobile station to the first base station includes a step of: setting different threshold values for connecting and disconnecting the mobile station with the first base station and the second station, respectively, when the mobile station is on standby and switches a connection destination thereof (column 3:lines 5-20, column 9:lines 34-64, column 11:lines 9-35; base stations in the neighboring cells have differing handoff thresholds).

Regarding claim 8, KARLSSON discloses a mobile station in a mobile communication system (abstract) including a first base station capable of directional beam signal transmission and reception [directional antenna] (column 4:line 53-column 5:line 4) and a second base station incapable of directional beam signal transmission

Art Unit: 2683

and reception [omni-directional antenna] (column 4:line 53-column 5:line 4; the invention disclosed can be used with either directional antennas or omni-directional antennas), the mobile station comprising: a base station connection unit configured to preferentially connect the mobile station to the first base station rather than to the second base station (106-Figure 10, column 2:line 65-column 3:line 54, column 11:line 9-15).

Regarding claim 9, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses wherein the base station connection unit sets different threshold values for connecting and disconnecting the mobile station with the first base station and the second station, respectively, when the mobile station is on standby and switches a connection destination thereof (column 3:lines 5-20, column 9:lines 23-33, column 9:lines 41-64, column 11:lines 9-35; base stations in the neighboring cells have differing preset handoff thresholds).

Regarding claim 12, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses further comprising: a base station determination unit configured to identify and distinguish the first base station from the second base station (column 9:lines 41-64, column 11:lines 22-35; the mobile station tunes to a preferred neighbor when measured signal strength is above a threshold. It is inherently necessary to include a way to distinguish between current base station and neighboring base station during handover).

Regarding claim 13, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses further comprising:

Art Unit: 2683

a threshold value receiver configured to receive the threshold values (column 11:lines 50-61; threshold value of neighboring base stations are broadcast to the mobile for calculation).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over KARLSSON (US 5,499,386) in view of PALENIUS et al (US 2002/0019231 A1).

Regarding claim 4, KARLSSON discloses a controller for controlling a radio link connection between a mobile station and a base station (column 4:lines 56-58, column 12:lines 17-34) in a mobile communication system including a first base station capable of directional beam signal transmission and reception [directional antenna] (column 4:line 53-column 5:line 4) and a second base station incapable of directional beam signal transmission and reception [omni-directional antenna] (column 4:line 53-column

Art Unit: 2683

5:line 4; the invention disclosed can be used with either directional antennas or omnidirectional antennas), the controller comprising: a base station connection control unit configured to preferentially connect the mobile station to the first base station rather than to the second base station (106-Figure 10, column 2:line 65-column 3:line 54, column 11:line 9-15, column 12:lines 17-34). However KARLSON does not disclose that the base station controller is a radio network controller. PALENIUS discloses that the base station controller is a radio network controller (paragraph 17). Therefore it would have been obvious to modify KARLSSON to include a radio network controller as both inventions teach a method and system for handover with defined thresholds in a cellular communication system. This is beneficial in that it would allow the ability to use the handover techniques described in a UMTS system. It is well known in the art that base stations using UMTS protocols must include a radio network controller.

Regarding claim 5, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses wherein the base station connection control unit sets different handover threshold values for connecting and disconnecting the mobile station with the first base station and the second station, respectively (column 3:lines 5-20, column 9:lines 23-64, column 11:lines 9-35; base stations in the neighboring cells can have differing preset handoff thresholds).

6. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over KARLSSON (US 5,499,386) in view of PALENIUS et al (US 2002/0019231 A1) as applied to claim 5 above, and further in view of RAMAKRISHNA et al (US 6,233,455 B1).

Regarding claim 6, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses wherein the handover threshold value for connecting the mobile station with the first base station is larger than the handover threshold value for connecting the mobile station with the second base station (column 9:lines 41-64, column 11:lines 36-44; thresholds for differing cells are determined individually and can be chosen to be higher or lower then each other. This threshold is responsible for the connection and disconnection of the mobile between the two base stations). However the combination of KARLSSON and PALENIUS does not disclose wherein the handover threshold value is defined as an absolute value of a difference between power of signals from a handover source base station and power of signals from a handover destination base station. RAMAKRISHNA discloses wherein the handover threshold value is defined as an absolute value of a difference between power of signals from a handover source base station and power of signals from a handover destination base station (column 6:line 59-column 7:line 7). Therefore it would have been obvious to modify the combination of KARLSSON and PALENIUS to adjust the threshold values to be defined as an absolute value of a difference between power of signals from a handover source base station and power of signals from a handover destination base station as both systems deal with improvement of handoff in a cellular communication system. This is beneficial in that it allows the use of measured signal power to determine weather handoff should occur.

Regarding claim 7, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses wherein the

Art Unit: 2683

handover threshold value for disconnecting the mobile station with the first base station is larger than the handover threshold value for disconnecting the mobile station with the second base station (column 9:lines 41-64, column 11:lines 36-44; thresholds for differing cells are determined individually and can be chosen to be higher or lower than each other. This threshold is responsible for the connection and disconnection of the mobile between the two base stations). However the combination of KARLSSON and PALENIUS does not disclose wherein the handover threshold value is defined as an absolute value of a difference between power of signals from a handover source base station and power of signals from a handover destination base station. RAMAKRISHNA discloses wherein the handover threshold value is defined as an absolute value of a difference between power of signals from a handover source base station and power of signals from a handover destination base station (column 6:line 59-column 7:line 7). Therefore it would have been obvious to modify the combination of KARLSSON and PALENIUS to adjust the threshold values to be defined as an absolute value of a difference between power of signals from a handover source base station and power of signals from a handover destination base station as both systems deal with improvement of handoff in a cellular communication system. This is beneficial in that it allows the use of real time measured signal power to determine whether handoff should occur.

7. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over KARLSSON (US 5,499,386) in view of RAMAKRISHNA et al (US 6,233,455 B1).

Regarding claim 10, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses wherein the threshold value for switching to the first base station is smaller than the threshold value for switching to the second base station (column 9:lines 41-64, column 11:lines 36-44; thresholds for differing cells are determined individually and can be chosen to be higher or lower then each other). However, KARLSSON does not discloses wherein the threshold value is defined as an absolute value of a difference between power of signals from a switching source base station and power of signals from a switching destination base station. RAMAKRISHNA et al discloses wherein the threshold value is defined as an absolute value of a difference between power of signals from a switching source base station and power of signals from a switching destination base station (column 6:line 59-column 7:line 7). Therefore it would have been obvious to modify KARLSSON to adjust the threshold values to be defined as an absolute value of a difference between power of signals from a handover source base station and power of signals from a handover destination base station as both systems deal with improvement of handoff in a cellular communication system. This is beneficial in that it allows the use of measured signal power to determine weather handoff should occur.

Regarding claim 11, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses wherein the threshold value for switching to the first base station is larger than the threshold value for switching to the second base station (column 9:lines 41-64, column 11:lines 36-44; thresholds for differing cells are determined individually and can be chosen to be higher

Art Unit: 2683

or lower than the other). However, KARLSSON does not disclose wherein the threshold value is defined as an absolute value of a difference between power of signals from a switching source base station and power of signals from a switching destination base station. RAMAKRISHNA et al discloses wherein the threshold value is defined as an absolute value of a difference between power of signals from a switching source base station and power of signals from a switching destination base station (column 6:line 59-column 7:line 7). Therefore it would have been obvious to modify KARLSSON to adjust the threshold values to be defined as an absolute value of a difference between power of signals from a handover source base station and power of signals from a handover destination base station as both systems deal with improvement of handoff in a cellular communication system. This is beneficial in that it allows the use of measured signal power to determine whether handoff should occur.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

BRODY et al (US 4,670,899) – Load balancing in cellular system

SPALING et al (US 2002/0077113 A1) – Congestion control in CDMA system

TROMPOWER (US 6,006,096) – Power based locator system

YAHAGI (US 5,404,576) – Base station coverage area control

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ariel Balaoing whose telephone number is (571) 272-

Art Unit: 2683

7317. The examiner can normally be reached on Monday-Friday from 8:00 AM to 4:30 AM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on (571) 272-7872. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ariel Balaoing
Patent Examiner
Art Unit 2683

AB



A handwritten signature in black ink, appearing to read 'Ariel Balaoing', is written over a rectangular stamp. The stamp contains the text 'Ariel Balaoing' and 'Patent Examiner' in a bold, sans-serif font.